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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,594	02/26/2004	Takao Inoue	MAM-038	4338
20374	7590	04/04/2006	EXAMINER	
KUBOVCIK & KUBOVCIK SUITE 710 900 17TH STREET NW WASHINGTON, DC 20006			PARSONS, THOMAS H	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/786,594	INOUE ET AL.	
	Examiner	Art Unit	
	Thomas H. Parsons	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
Page 4, line 17, the text, "...ions species..." appears awkwardly worded;
Page 12, lines 17, 19, and 21, suggest changing "carve" to --curve--; and,
Page 19, line 1, suggest changing "Fig. 2" to --Fig. 4--..

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. (4,578,327) in view of Shoji et al. (5,650,244).

Claim 1: Saito et al. in Figure 2 discloses nonaqueous electrolyte battery comprising a positive electrode (5) including carbon fluoride as an active material, a negative electrode (2) including calcium as an active material, and an electrolyte (abstract, col. 1: 10-16, col. 2: 41-45, col. 5: 10-36).

Saito et al. do not disclose an electrolyte including an imide salt of calcium or a sulfonic acid salt of calcium.

Shoji et al. disclose an electrolyte including an imide salt of calcium or a sulfonic acid salt of calcium (abstract and col. 1: 50-67 and col. 2: 28-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the electrolyte of Saito et al. by incorporating the imide salt of calcium or a sulfonic acid salt of calcium of Shoji et al. because Shoji et al. teach imide salt of calcium or a sulfonic acid salt of calcium that would have suppressed the reaction (self-discharge) of the electrolyte, thereby improving the storage stability (col. 1: 38-43 and col. 3: 3-8).

Claim 2: The rejection is as set forth above in claim 1 wherein further Shoji et al. disclose that the imide salt of calcium is a sulfonyl imide salt of calcium (col. 1: 56-57 and col. 2: 33).

Claim 3: The rejection is as set forth above wherein further Shoji et al. disclose that the sulfonyl imide salt of calcium is an alkylsulfonyl imide salt of calcium (col. 1: 56-57 and col. 2: 33).

Claim 4: The rejection is as set forth above wherein further Shoji et al. disclose that the electrolyte includes calcium bis(trifluoromethylsulfonyl) imide, $\text{Ca}[\text{N}(\text{CF}_3\text{SO}_2)_2]_2$ (col. 1: 56-57 and col. 2: 33).

Claim 5: The rejection is as set forth above wherein further Shoji et al. disclose that the sulfonic acid salt of calcium is an alkylsulfonic acid salt of calcium (col. 1: 56 and col. 2: 32).

Claim 6: The rejection is as set forth above wherein further Shoji et al. disclose that the alkylsulfonic acid salt of calcium is calcium trifluoromethanesulfonate, $\text{Ca}(\text{CF}_3\text{SO}_3)_2$ (col. 1: 56

Art Unit: 1745

and col. 2: 32).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 7 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Roche et al. (3,980,495).

Claim 7: Roche et al. in Figure 1 disclose a nonaqueous electrolyte battery comprising a positive electrode (15) including sulfur as an active material, a negative electrode (13) including calcium as an active material, and an electrolyte (17) including a calcium salt (abstract, col. 3: 1-10, 22-68).

Claim 13: Roche et al. disclose on col. 3 : 64-68 a negative electrode that includes at least one of calcium metals, calcium alloys, calcium oxides, silicon, carbon and sulfides of transition metals

6. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roche et al. as applied to claim 7 above, and further in view of Shoji et al. (5,650,244).

Claim 8: Roche et al. do not disclose an electrolyte including an imide salt of calcium or a sulfonic acid salt of calcium.

Art Unit: 1745

Shoji et al. disclose an electrolyte including an imide salt of calcium or a sulfonic acid salt of calcium (abstract and col. 1: 50-67 and col. 2: 28-36).

Claim 9: Roche et al. do not disclose that the imide salt is an alkylsulfonyl imide salt.

Shoji et al. disclose that the imide salt is an alkylsulfonyl imide salt (col. 1: 56-57 and col. 2: 33).

Claim 10: Roche et al. do not disclose that the alkylsulfonyl imide salt is calcium bis (trifluoromethylsulfonyl) imide, $\text{Ca}[\text{N}(\text{CF}_3\text{SO}_2)_2]_2$.

Shoji et al. disclose that the alkylsulfonyl imide salt is calcium bis (trifluoromethylsulfonyl) imide, $\text{Ca}[\text{N}(\text{CF}_3\text{SO}_2)_2]_2$ (col. 1: 56-57 and col. 2: 33).

Claim 11: Roche et al. do not disclose that the sulfonic acid salt is an alkylsulfonic acid salt.

Shoji et al. disclose that the sulfonic acid salt is an alkylsulfonic acid salt (col. 1: 56 and col. 2: 32).

Claim 12: Roche et al. do not disclose that the alkylsulfonic acid salt is calcium trifluoromethanesulfonate, $\text{Ca}(\text{CF}_3\text{SO}_3)_2$.

Shoji et al. disclose that the alkylsulfonic acid salt is calcium trifluoromethanesulfonate, $\text{Ca}(\text{CF}_3\text{SO}_3)_2$ (col. 1: 56 and col. 2: 32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the electrolyte of Saito et al. by incorporating the imide salt of calcium or a sulfonic acid salt of calcium of Shoji et al. because Shoji et al. teach imide salt of calcium or a sulfonic acid salt of calcium that would have suppressed the

Art Unit: 1745

reaction (self-discharge) of the electrolyte, thereby improving the storage stability (col. 1: 38-43 and col. 3: 3-8).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H. Parsons whose telephone number is (571) 272-1290. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER

Thomas H Parsons
Examiner
Art Unit 1745
